Abstract

The present invention relates to an interferometric measuring device for recording the shape, the roughness or the separation distance of the surface of a measuring object (8), having a modulating interferometer (2), to which is supplied short-coherent radiation by a radiation source (1), and which has a first beam splitter (2.3) for splitting the radiation supplied into a first beam component (2.1) guided via a first arm, and into a second beam component (2.1') guided via a second arm, of which the one is shifted with respect to the other with the aid of a modulating device (2.2, 2.2') in its light phase or light frequency, and passes through a delay line (2.9'), and which are subsequently combined at an additional beam splitter (2.10) of the modulating interferometer (2), having a measuring probe (3) that is spatially separated from the modulating interferometer (2) and is coupled to it or able to be coupled to it via a light-conducting fiber set-up (6), in which the combined beam components are split in a common arm in a partially transmitting region (3.3) into a measuring beam and a reference beam, and in which the measuring beam ($r_1(t)$) reflected at the surface and the reference beam ($r_2(t)$) reflected at a reference plane are superposed, and having a receiver device (4) and an evaluating device (5) for converting the radiation supplied to it into electrical signals and for evaluating the signals on the basis of a phase difference, One favorable construction for reliable measurements even in tight hollow spaces comes about in that the partially transmitting region (3.3) is formed by a slanting exit face (3.31) of a probe fiber (3.1) at an exit angle (α) with respect to the optical probe axis (3.5) and a likewise slanting entrance face (3.32), of a fiber section (3.2) following on the object side, with respect to the optical probe axis (3.5) at an entrance angle (β), a wedge-shaped gap being formed between the exit surface (3.31) and the entrance surface (3.32).

(Fig. 1)